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TIMOTHY N TROP
TROP, PRUNER, HU & MILES, P.C.
8550 KATY FREEWAY
SUITE 128
HOUSTON, TX 77024

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 29

Application Number: 08/878,908
Filing Date: June 19, 1997
Appellant(s): LAUTERJUNG, KARL-LUTZ

Timothy N. Trop
For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

This is in response to the Remand mailed April 24, 2002.

In the Remand, the Board of Appeals and Interferences (Board) requested guidance with respect to how the prior art was applied. The Examiner thought that the rejections along with the response to arguments were adequate in this regard. However, the Board thought otherwise. In particular, the Board objected to the Examiner's reference to the entire document. It is the Examiner's practice to reference

the entire document because the document must be considered as a whole. The specific sections recited thereafter are the point of focus, and where the majority of the limitations can be found. Nonetheless, the Examiner regrets any inconvenience that this misunderstanding may have caused the Appellant and the Board.

The Examiner has restated the rejections, using the same grounds as before, but has added additional explanation.

Claims 21-25 and 28 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lazarus (WO 89/08433) wherein the pair of folded rings as claimed are the staples (16) and (17) of Lazarus (see Figure 2 and page 8, lines 4-24), the first pair of loops as claimed are any set of diametrically opposed apexes (62) of Lazarus (see Figure 3 and page 8, line 25 to page 9, line 16), the second pair of loops as claimed are any diametrically opposed pair of abutment points (63) of Lazarus (see Figure 3), the first and second loops connected together as claimed are the opposed apexes and abutment points connected to each other via the V-shaped support members (60) therebetween of Lazarus, the tubular graft as claimed is met by the graft (12) of Lazarus (see Figure 2 and page 7, lines 17 to page 8, line 7), the pair of free ends as claimed are the ends of the graft (12) of Lazarus, and the spring connection to the free ends as claimed is met by the wall engaging members (70) and sharp points (71) which penetrate through the graft (see Figure 2 and page 9, lines 26-29). It is noted that the staples are resilient and compressible to a smaller diameter; see page 8, line 34 to page 9, line 2.

With regard to claim 22 specifically, the Examiner posits that the claimed feature is inherently present in the Lazarus device because it depends upon how the device is placed within the body.

With regard to claim 23, the unfolded diameter is the diameter where the staple is diametrically expanded to the extent that the apexes and abutment points would be completely or nearly entirely unfolded (not shown but inherent). Figure 6 of Lazarus shows that the staple is still folded and within the tubular graft. Therefore, if the staple were stretched out radially so that it no longer had folds in it than the staple (16) would have a diameter greater than the compressed diameter of the tubular graft. Since Appellant's claims do not specify which diameter of the tubular graft is being referred to, the Examiner posits that the compressed diameter of the tubular graft is a suitable diameter. Furthermore, by inspection of the Figure 6, it can be determined that the staple (16), if stretched to an unfolded state, would be larger than the blood vessel. Particularly, if the diameter of the staple is taken to be approximately 2 support members (4 legs) in Figure 6 and if those legs were straightened out, they would result in an overall diameter of approximately 36 mm. The blood vessel, on the other hand, measures 27 mm in inner diameter. From this, the Examiner reasons that a fully expanded staple in Figure 6 would also be larger than a fully expanded graft because the graft should have an expanded diameter approximately equal to the inner diameter of the blood vessel.

With regard to claim 24, the plurality of strands of resilient wire having a substantially common central axis as claimed is met by the legs (60A, 60B, 60C, 60D)

which have the common central axis of the V-shaped staple; See Figure 3 and page 8, lines 25-34 of Lazarus.

With regard to claim 25, Appellant is directed to the claim 23 where a circular cross-section can be obtained. Furthermore, a cross-section taken through the legs would be circular because cylindrical legs are shown in the Figures; see Figures 3 and 4.

With regard to claim 28, the claim language recited herein only requires that there is something in the vascular prosthesis to receive a guidewire telescopically. It is the Examiner's position this reads on the tubular space inside the graft (12) of Lazarus. However, even though the claims are drawn to a prosthesis and not to a prosthesis delivery device, Lazarus also discloses a delivery device with a wire guide (24); See Figure 1 and page 6, lines 4-29.

Claims 21-25 and 28 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Robinson et al (US 5,733,325) wherein the pair of folded resilient annular rings as claimed is shown best in Figure 4 as expandable segments (33) and (35) in Robinson, the first pair of loops as claimed are any pair of diametrically opposed bends (37) on one end (e.g. top end) of the expandable segment in Robinson, the second pair of loops are any pair of diametrically opposed bends (37) on the other side (e.g. bottom end) of the expandable segment of Robinson, the loops are connected together via the interconnecting wires of the anchor (30) or (30') of Robinson, the tubular graft as claimed is the vascular graft (20) of Robinson and it is connected to the anchor (30) or (30') via sutures (50) or holes (54) (see Figures 3, 5, 10, 11, and 12 as well as column

6, lines 53-65 and column 7, line 36 to column 8, line 3). It is noted that the anchor of Robinson is resilient (see column 5, lines 50-62). see the whole document, especially the figures and the "Detailed Description of the Invention".

With regard to claim 22 specifically, the Examiner posits that the claimed feature is inherently present in the Lazarus device because it depends upon how the device is placed within the body. It is noted however, that Robinson et al discloses the use of his device in the same location as that called for in claim 22 even though the limitation is based on the intended use of the device. One would have to assume that the Robinson et al device would be inoperative if it could not be used to avoid occlusion of the renal arteries. Since patents are presumed to be operative for their intended function and use, the Examiner asserts that the limitations of claim 22 are fully met.

With regard to claim 23, the unfolded diameter is the diameter where the anchor is diametrically expanded to the extent that the bends would be completely or nearly entirely unfolded (not shown but inherent). If the anchor were stretched out radially so that it no longer had folds in it than the anchor would have a diameter greater than the compressed diameter of the tubular graft. Since Appellant's claims do not specify which diameter of the tubular graft is being referred to, the Examiner posits that the compressed diameter of the tubular graft is a suitable diameter. Furthermore, by inspection of the Figures 3 and 4 of Robinson, it can be determined that the anchor (30) or (30'), if stretched to an unfolded state, would be larger than the blood vessel and the graft. Particularly, if the diameter of the anchor (the drawing figure measures 35 mm for the diameter) is taken to be approximately 4 legs in Figure 4 and if those legs were

straightened out, they would result in an overall diameter of approximately 100 mm. The graft and presumably the blood vessel, on the other hand, measure 35 mm in diameter. From this, the Examiner reasons that a fully expanded anchor in Figure 4 would also be larger than a fully expanded graft because the graft should have an expanded diameter approximately equal to the inner diameter of the blood vessel.

With regard to claim 24, the plurality of strands of resilient wire having a substantially common central axis as claimed is met by the legs, which have the common central axis of the bent wire anchor.

With regard to claim 25, Appellant is directed to the claim 23 where a circular cross-section can be obtained. Furthermore, a cross-section take through the legs would be circular because cylindrical legs are shown in the Figures; see Figures 3 and 4.

With regard to claim 28, the claim language recited herein only requires that there is something in the vascular prosthesis to receive a guidewire telescopically. It is the Examiner's position this reads on the tubular space inside the graft (30) of Robinson. However, even though the claims are drawn to a prosthesis and not to a prosthesis delivery device, Robinson also discloses a delivery device with a guidewire (88); See Figure 13 and column 8, lines 18-37.

Claims 63 to 65 are rejected under 35 U.S.C. 102(b) as being anticipated by Kwan-Gett (US 5,151,105) wherein the tubular graft with free ends is shown as the extreme right and left sides of the tubular body portion (12) of Kwan-Gett (see Figure 2 and column 4, line 50 to column 5, line 31), the wire ring of overlapping windings as

claimed is met by either of stents (18) and (20) of Kwan-Gett which include overlapping windings of resilient wire, either of the wire of stents (18) and (20) is resilient because it is spring steel and it is compressible and self-expanding (see column 5, lines 19-31). The stents (18) and (20) are shown compressed and they later expand released within a blood vessel; Figure 7 as well as Col. 5, lines 19-31.

With regard to claims 64 and 65, the Examiner asserts that this is an inherent feature of wound rings verses solid rings of the same diameter. The Examiner notes that claim 65 does set forth what dimensions are being compared to a solid ring. Furthermore, the Examiner posits that the minimum bending diameter, since it is a measured physical property, is inherently present in the Kwan-Gett spring due to the fact that it is an elastically deformable material. Nonetheless, even though claims 64 and 65 do not require a particular dimension comparison to a solid ring, the Examiner will alternatively interpret it in this manner. Specifically, the minimum bending diameter is disclosed as being based on the diameter of the individual strands of the ring windings. (The name "minimum bending diameter" appears to be a misnomer for "bending force"). However, the Examiner posits that the controlling dimension for bending is really the cross-sectional area. In this case, the total cross-sectional area of all the individual strands of the ring verses the total cross-sectional area of a solid ring is to be compared. Therefore, the Examiner posits that the force required to deform (i.e. strain) a ring of many windings is lower than that of a solid ring because a solid ring has a greater cross-sectional area. This is due to the fact that there are spaces between the individual windings because the windings do not fit together perfectly. These spaces

actually reduce the actual cross-section area of the ring as compared to a solid ring of the same diameter, which has no spaces. For this reason, a solid ring of the same diameter as a ring of wound wire will require a higher bending force because it has a greater cross-sectional area of actual metal. As a result, the limitation of claims 64 and 65 is met because it is an inherent feature to a wound ring as compared to a solid ring.

PRODUCT-BY-PROCESS FORMAT ISSUE

Upon further review of pages 5-10 and the Examiner's Answer, the Examiner could find no reference to product-by-process formatted claims. The Examiner is not sure where the Board found that this was implied by the Examiner, but the implication was not intended. The Examiner regrets any confusion that his response to the argument may have caused the Board or the Appellants.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Paul Prebilic
Primary Examiner

pbp
July 2, 2002

David Willse
Primary Examiner
Conferee

Bruce Snow
Primary Examiner
Conferee

Timothy N. Trop
TROP, PRUNER, HU & MILES, P.C.
8500 KATY FREEWAY
SUITE 128
HOUSTON, TX 77024

CORRINE McDERMOTT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700